

SECTION 160

STEEL CASTINGS

160.1 GENERAL:

160.1.1 Steel castings shall be as shown on the plans and specified herein, including rockers and rocker plates. The castings shall be true to pattern in form and dimension and free from pouring faults, sponginess, cracks, blowholes, or defects that would affect the service value of the casting.

160.1.2 Blowholes shall not have a depth sufficient to affect injuriously the strength of the castings. Minor defects which do not impair the strength of a casting may, with the approval of the ENGINEER, be welded by an approved process. Defects shall be cleaned out to solid metal by chipping or other satisfactory means and after welding, the castings shall be annealed, if so required by the ENGINEER. Castings which have been welded without the permission of the ENGINEER shall be rejected.

160.2 REFERENCES:

160.2.1 ASTM
A 27 E 10
A 148 E 30

160.3 FINISH:

160.3.1 The dimensions of the finished castings shall be not less than the specified dimensions. Castings shall be not more than 7 1/2 percent overweight.

160.3.2 The bearing surfaces of rockers and rocker plates shall be machined accurately to the dimensions shown on the plans. The final surface shall be produced by a finishing cut. They shall be straight, smooth, and free from flows.

160.3.3 Chemical analysis shall be performed in accordance with ASTM E 30.

160.4 TEST SPECIMENS:

160.4.1 Test coupons from which tension test pieces are prepared shall be attached to the castings where practicable. If, in the opinion of the manufacturer, the design of the casting is such that test coupons should not be attached thereon, the test coupons shall be cast attached to separate cast blocks. Sufficient coupons shall be cast to represent each lot with additional specimens for use in case retests should be required. A lot shall be considered as

all castings in a melt which have constituted part or all of a heat-treatment charge.

160.4.2 Coupons shall remain attached until after the annealing process has been completed. Coupons may be identified by a representative of the ENGINEER. Where test coupons are cast separately from the castings, a representative of the ENGINEER may be present at the time of pouring to identify both coupons and castings. Coupons cast separately from the castings shall not be detached from the block to which they are fastened until identified.

160.4.3 The test coupons shall be of such size that test specimens can be machined to dimensions as specified in the ASTM procedure referred to herein. Where a specimen or machining appears faulty and is intended as a true sample of the lot of casting to which it belongs, the representative of the ENGINEER may substitute another coupon of the lot in question. Test specimens shall be furnished and machined at the CONTRACTOR's expense.

160.5 RETESTS: If the results of the physical test for any lot do not conform to the requirements specified, the manufacturer may reheat-treat such lot. Representative coupons shall be reheat-treated with the lot to serve as retest specimens.

160.6 HIGH-STRENGTH STEEL CASTINGS FOR STRUCTURAL PURPOSES: Castings shall conform to ASTM A 148, Grade 80-50 except that the steel shall contain not less than 0.60 percent of manganese and not less than 0.20 percent of silicon.

160.7 MILD-TO-MEDIUM STRENGTH CARBON-STEEL CASTINGS FOR GENERAL APPLICATION: Casting shall conform to ASTM A 27, Grade 65-35. The metal shall have a minimum Brinell hardness number of 130, when tested in accordance with ASTM Test E-10.

160.8 MEASUREMENT AND PAYMENT

Payment shall be per unit price as specified in the Bid Proposal or may be included in the major construction item unit cost.